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West Virginia Agricultural Experiment Station.

MORGANTOWN, W. VA.

POTATOES.

By L. C. CORBETT.

JANUARY, 1896.

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Preface.

The experimental work upon which this bulletin is based was begun by Prof. F. W. Rane, who had charge of the work until a part of the harvesting was done, when he tendered his resignation to accept a position in another State. The notes begun under Prof. Rane, together with those taken after his departure, were offered to him for preparation in bulletin form, but he declined to work them up, owing to other pressing duties. I then requested his successor Prof. L. C. Corbett to tabulate and classify the results for publication. To Prof. Corbett, therefore, are due the deductions and conclusions published in this bulletin.

JOHN A. MYERS,
Director.

Morgantown, January, 1896.

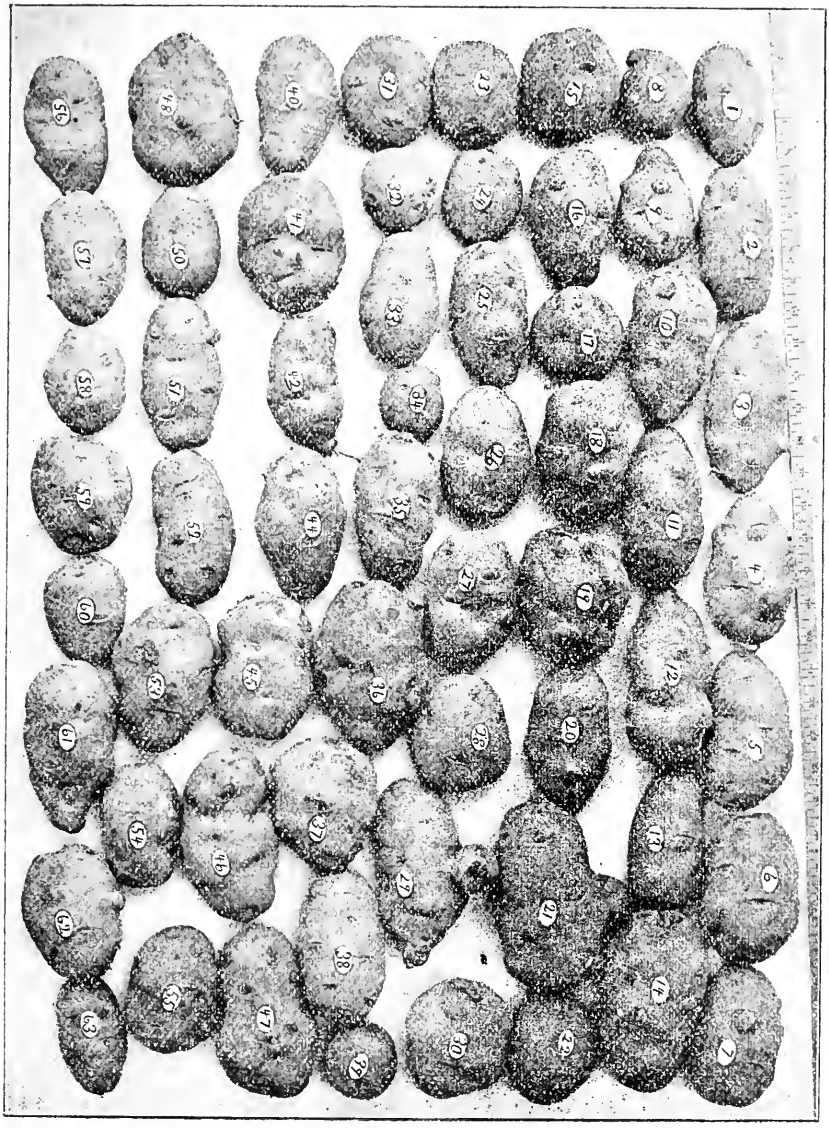
Potatoes at the Station.

In several sections of the State potato growing has for many years been one of the leading pursuits.

Recognizing the importance of this crop the station has endeavored to serve as a guide and aid for planters by carrying on extended tests of the comparative merits of standard sorts together with those of later introduction, denominated novelties by our seed dealers. This work was begun in 1894* and has been continued during the past season. Important additions have been made to the list so that instead of the thirty-five varieties reported last season there are now sixty-two. A second feature which adds much to the value of the work is the duplication of the work of 1894 so that at this time we are enabled to present a comparison of the results obtained from a two year's trial of the first thirty five varieties. From a comparison of the yields of 1894 with those of 1895 it will be noted that out of the thirty five varieties of '94 twenty one produced larger yields in '95 than during the previous season, and of the fourteen varieties showing a falling off during '95 (marked by underscore lines), it will be noted, that, with but few exceptions, they are the ones giving the most promising results in '94 ; hence the value of extended trials of the same varieties. Another peculiar result is brought out by a further study of these tables. Out of the thirty-five varieties of 1894 only four, Nos. 3, 4, 8 and 13 maintained an average yield of more than 170 bushels per acre during both seasons.

In 1894 all the varieties up to and including No. 29 were planted on April 20 and 21, the remaining numbers were planted on April 28. The planting of the present season was all done on April 6 ; one hundred eyes being used in all cases except where otherwise noted.

*See Bulletin 38 of this Station--Potatoes, Potato Blight, Potato Scab.



Potatoes of 1895.

The numbers upon the tubers refer to the corresponding numbers at the left in the tables on pages 192, 193, 194, 195 and 196.

POTATOES, 1894.

No.	Variety.	Seedsman.	Form of Top.	Date of Maturity.	Blight—Scale 0—10.	Yield. Merchantable—lbs.	Yield. Small—lbs.	Yield. Total—lbs.	Yield. Per acre—bushels.	Per cent. of Scab	Color of Skin.	Form.	Cooking Qualities. Scale 1—10.	Remarks.
1	Early Ohio	C. P. Waugh	Small	July 28	5	17	7 5	24.5	76	10	White		9	All seed from Mr. Waugh
2	Early Rose	C. P. Waugh	Medium	Aug. 10	3	35	12	47	146¼	4	Pink		8	was smooth, clean and bright.
3	Early Everitt	C. P. Waugh	Medium	July 28	0	46.5	19.5	66	205 1-6	2	White		10	
4	White Star	C. P. Waugh	Very Large	Aug. 30	0	43.6	13.7	57.3	178¼	1	White		9	
5	Early Northern	Peter Henderson & Co.	Medium	Aug. 10	2	23.8	12.4	36.2	112½	12	White		9	
6	Rural N. Y. No. 2	F. A. Sanders	Large Sp'dg.	Aug. 15	0	54.4	4	58 4	164 5-6	4	White		9	A fine large tuber.
7	Early Six Weeks	Barteldes & Co.	Small	July 28	7	10.2	12	22.2	69 1 5	10	Pink		8	
8	Montana Wonder	N. B. G. & Co.	Medium	Aug. 15	2	32	24	56	174 1-6	12	White		9	
9	Early Minnesota	N. B. G. & Co.	Medium	Aug. 15	3	40	3	43	133¾	7	White		8	
10	Manitoba Rose	N. B. G. & Co.	Small	Aug. 20	2	12	6	18	56	0	White			Cutting poor when planted.
11	Great Divide	Burpee & Co.	Large	Aug. 21	1	39	25	64	199 1-10	10	White		8	
12	Extra Early	Burpee & Co.	Medium	Aug. 9	4	29.5	11	40.5	126	11	White		9	
13	Superior	Burpee & Co.	Large	Aug. 9	2	43.7	19.8	63.5	197½	2	White		9	
14	Penn Manor	Johnson & Stokes	Medium	Aug. 16	3	33.2	13.4	46.6	144 9-10	21	White			[Gypsum. Did not Keep Well.
15	Bliss Triumph	Johnson & Stokes	Medium	Aug. 8	5	7	4.7	11.7	36 3-5	0	Piuk			From Single Eye Cuttings in
16	Crown Jewell	Johnson Stokes	Small	Aug. 21	3	89.8	16 2	106	329¾	4	White		8	Most Productive Variety.
17	Freeman	Johnston & Stokes	Medium	Aug. 21	5	9	9	18	56	6	White		10	Tubers too small.
18	Farmers' Alliance	Landreth & Co.	Medium	Aug. 21	5	40	11.4	51.4	159 9-10	21	Pink		7	
19	Standard	H. A. Dreer	Medium	Aug. 9	5	23	17	40	124	9	White		10	
20	American Wonder	Vick & Sons	Very Large	Aug. 25	0	57.1	10.6	67.7	210 3-5	3	White		9	A very desirable potato.
21	Maggie Murphy	Vick & Sons	Medium	Aug. 20	2	53.5	6.5	60	186⅔	4	White		9	Tubers large rn'd, desirable.
22	Badger Belle	L. H. Reid	Medium	Aug. 9	1	44	8.8	52.8	164 4-15	8	White		8	A promising variety.
23	Early Pink Eye	L. H. Reid	Medium	Aug. 20	7	42	9.8	51.8	161 3-20	11	White		7	
24	Seedling No. 99	L. H. Reid	Medium	Aug. 15	0	36	12	48	149⅓	10	White		10	
25	Earliest and Best	Burpee & Co.	Medium	Aug. 10	1	18.5	11	29.5	91¾	6	White		10	

See Photograph

POTATOES, 1894—*Continued.*

No.	Variety.	Seedsman.	Form of Top.	Date of Maturity.	Blight—Scale 0—10.	Yield.				Per cent. of Scab.	Color of Skin.	Form.	Cooking Qualities. Scale 1—10.	Remarks.
						Merchantable—lbs.	Small—lbs.	Total—lbs.	Per acre—bushels.					
26	Variegated	Station	Small	Aug. 21	1	12.5	9.5	22	68 2-5	4	White		7	[Yel'ow top.]
27	Minister	Station	Large	Aug. 29	4	28.3	14.7	43	133⅓	2	White		9	Grown mainly for fancy.
28	No Name	Station	Large	Aug. 25	2	32 2	5.9	41.7	129⅔	20	Blue		6	Blue thick skin, rough.
29	Stanley	Station	Medium	Aug. 25	2	15.7	12.5	28 2	87 11-15	8	White		8	
30	Early Everitt	J. A. Everitt	Medium	Aug. 28	0	14.4	10	24.4	75 9-10	17	White		9	From this number down they
31	Green Mountain	J. A. Everitt	Medium	Aug. 28	2	24	15 4	39.4	122 2-5	21	White		8	receiv d a late start and the
32	Everitt's Heavy Weight	J. A. Everitt	Large	Aug. 29	0	11.4	15.6	27	84	14	White		7	dry weather checked them.
33	Everitt's 6 Weeks Market	J. A. Everitt	Very Small	July 28	5	6	12	18	56	10	White		9	
34	Rural N. Y. No. 2	J. A. Everitt	Medium	Aug. 30	0	36	36	72	224	14	White		8	Highly rec'm'uded ev'rywh're.
35	Everitt's Colossal	J. A. Everitt	Medium	Aug 30	0	27	9 4	36 4	113 1-5	40	White		8	

See Photo.

POTATOES, 1895.

Garden No.	Variety.	Seedsman.	Date of Maturity.	Blight—Scale 0—10.	Yield.				Per cent. of Scab.	Color of Skin.	No. of eyes planted.	Remarks.
					Merchantable lbs.	Small lbs.	Total lbs.	Per Acre—bushels.				
1	Early Ohio	C. P. Waugh	August 7	4	14	7.5	21.5	93.6	33	Pink	100	
2	Early Rose	C. P. Waugh	August 7	1	27.5	10.5	38	165	3	Pink	100	
3	Early Everett	C. P. Waugh	August 7	0	41	8	49	213.5	5	White	100	
4	White Star	C. P. Waugh	August 21	0	28	5	33	179.6	16	White	80	
5	Early Northern	Peter Henderson	August 7	0	24	11	45	196	15	Pink	100	Large, but few in a hill—seed mixed with some other variety.
6	Rural New Yorker No. 2	F. A. Sanders	August 21	0	27	2	30	130.7	0	White	100	
7	Early Six Weeks	Barteldes & Co.	August 11	5	40	8	48	209	46	Pink	100	
8	Montana Wonder	N. B. G. Co.	August 7	4	35	7	42	182.9	32	Pink	100	
9	Early Minnesota	N. B. G. Co.	August 21	2	39	11	50	217.8	5	Pink	100	
10	Monitoba Rose	N. B. G. Co	August 20	0	35	9.5	44.5	193.8	44	Pink	100	
11	Great Divide	Burpee & Co.	August 21	0	20	8	28	122	12	White	100	
12	Extra Early	Burpee & Co.	August 9	0	62	95	71.5	311.4	16	White	100	
13	Superior	Burpee & Co.	August 16	0	27	10	37	161.2	16⅔	White	100	
14	Penn Manor	Johnson & Stokes	August 21	2	48	8	56	243.6	15	White	100	
15	Bliss Triumph	Johnson & Stokes	August 8	0	32	8	40	174.2	17	Pink	100	
16	Crown Jewell	Johnson & Stokes	August 7	1	22.5	11	33.5	145.9	14	White	100	
17	Freeman	Johnson & Stokes	August 7	6	16	7	23	100.2	2	White	100	Tubers very small.
18	Farmers Alliance	Landreth	August 7	0	30	7	37	161.2	2	Pink	100	
19	Standard	H. A. Dreer	August 9	2	17	7	23	100.2	11	White	100	
20	American Wonder	Vick's Sons.	August 21	0	26	10	36	156.8	2	White	100	
21	Maggy Murphy	Vick's Sons.	August 7	5	34	3	37	161.2	2	White	100	Tubers very large
22	Badger Belle	L. H. Reid	August 21	2	12	8	20	87.1	1	White	100	Tubers small.
23	Early Pink Eye	L. H Reid	August 3	10	22	10	32	139.4	3	Pink	100	

POTATOES, 1895.—*Continued.*

Garden No.	Variety.	Seedsman.	Date of Maturity.	Blight—Scale 0—10.	Yield.				Per cent. of Scab.	Color of Skin.	No eyes planted.	Remarks.
					Merchantable—lbs.	Small—lbs.	Total—lbs	Per acre—bushels.				
24	Seedling No 99	L. H. Reid	August 15	0	16	11	27	117.6	3	White	100	
25	Earliest and Best	Burpee & Co.	August 7	4	31	15	46	200.3	23	White	100	Grown mostly for fancy.
26	Variegated	Station	August 7	2	36	4	40	217.8	0	White	80	
27	Minister	Station	August 21	0	24	7	31	168.7	16	White	80	
28	Large Blue	Station	August 15	1	32	55	37.5	204.5	28	Blue	80	No name; infested with a deep scab.
29	Stanley	Station	August 15	1	26	4	30	163.2	32	White	80	
30	Early Everett	J. A. Everett	August 5	0	38	11	49	213.5	14	Pink	100	
31	Green Mountain	J. A. Everett	August 15	4	12	4	16	69.6	12½	White	100	
32	Everitt's Heavy Weight	J. A. Everett	August 21	0	18.5	16	34.5	150.2	2	White	100	Small tubers.
33	Six Weeks Market	J. A. Everett	August 3	9	23	7	30	130.7	33⅓	White	100	Tubers very small.
34	Rural New Yorker No. 2	J. A. Everett	August 21	1	1	5	6	26.1	0	White	100	
35	Everett's Colossal	J. A. Everett	August 21	1	8	10	18	78.4	11	White	100	
36	Carmon No. 1	J. M. Thornburn	August 15	3	41	9	50	217.8	50	White	100	
37	Wood's Earliest	Wood & Son	August 3	10	27.5	8.5	36	156.8	20	Pink	100	
38	King of the Earliest	J. A. Salzer	August 7	5	3	1	4	89.1	26	Pink	20	
39	Salzer's Earliest	J. A. Salzer	August 7			1				Pink	20	Germinated very slowly.
40	Lightning Express	J. A. Salzer	August 7	1	5		15		35	White	20	Germinated poorly.
41	Harvest King	J. A. Salzer	August 21	0	3	4	7	30.5	10	White	20	
42	Milwaukee	Curry Bro.	August 7	3	15	5	20	348.5	25	White	25	
43	Early Vaughn	J. C. Vaughn										A failure.
44	Acme	J. C. Vaughn	August 7	7	13	1	14	243.9	10	Pink	25	
45	Irish Daisy	J. C. Vaughn	August 15	0	11.5	4.5	16	278.7	13	White	25	
46	Ideal	Peter Henderson	August 7	7	31	11	42	192.9	14	White	100	
47	Early Pride	Vick's Sons	August 10	2	43	12	55	239.5	24	Pink	100	Fine large tubers.
48	New Banner	Livingston's Sons	August 21	0	12	4	16	316.8	6	White	22	

POTATOES, 1895.—*Continued.*

Garden No.	Variety.	Seedman.	Date of maturity.	Blight scale—40.	Yield.				Per cent of scab.	Color of skin.	Number of eyes planted.	Remarks.
					Merchantable pounds.	Small pounds.	Total pounds.	Per acre bushels.				
49	Chance	Breck	August 21	8	4	5	9	217.8	1	White	18	
50	Early Puritan	C. P. Waugh	August 6	4	44	15	59	257	0	White	100	
51	Thornburn	C. P. Waugh	August 7	4	27	14	41	178.5	3	White	100	
52	Farly Maine	C. P. Waugh	August 10	—	37	15	52	226.5	0	White	100	
53	Seneca, Beauty	C. P. Waugh	August 21	10	19	4	23	100.2	0	Pink	100	
54	New Queen	C. P. Waugh	August 21	0	33	8	41	178.5	1	Pink	100	
55	Chicago Market	John Baird	August 20	0	19	11	30	130.7	24	Pink	100	
56	Forest Rose	J. W. Chrysty	August 21	0	10	5	15	118.8	0	White	55	A fine variety.
57	Orphan	Vicks	August 18	0	11	55	16.5	89 5	0	White	80	
58	Glade	E. J. Flythe	August 15	6	26	6	32	179.6	32	White	89	
59	Nebraska Beauty	Neb. Seed Co	August 7	2	7	5	12	261.3	8	White	20	
60	Early Harvest	A. C. Hamilton	August 21	0	4	6	20	384.5	10	White	25	
61	Delaware	Gregory & Sons	August 18	2	6.5	2.5	9	130.6	24	White	30	
62	Prolific Rose	Gregory & Sons	August 7	8	8	6	14	152.4	60	Pink	40	

Potato Scab.—Treatment.

The following record is suggestive from the fact that the soil upon which the present season's crop was grown was in potatoes during '94 and that the rows this season occupied the same ground as in '94 and further that the percentage of scab upon each variety occupying this area in 1894 is known and will be found recorded in Bulletin 38 of this Station, The present season's crop, Nos. 1 and 2 occupied the place of a variety having 20 per cent. scab in '94; Nos. 3 and 4 of one having 1 per cent; Nos. 5 and 6 of one having 4 percent: 7 and 8, 2 per cent., and 9, 10, 11, 12, one having 6 per cent. of scab.

It is thus seen that the soil was such as might be expected to produce scabby potatoes. The seed used was No. 12 of '94 known as Extra Early, and averaging 20 per cent. of scab in that season's crop.

This taken in connection with the scab-contaminated soil was sufficient to produce unusually favorable conditions for the development of scab.

Treatment of Seed.

The corrosive sublimate treatment consisted in soaking the seed in a solution of 2 oz. of corrosive sublimate (Bichloride of Mercury) to 16 gallons of water for two hours.

The Bordeaux Mixture, standard solution, made by dissolving 6 lbs. of Copper Sulphate in hot water in a wooden or stone vessel and when cool add to it 4 lbs of lime which has been slacked in another vessel and diluted to the consistency of white wash. After placing the two solutions together add water enough to make 40 gallons.

The potatoes receiving the Bordeaux Mixture treatment were soaked for two hours in a solution made as above described.

All the plants were sprayed with Paris Green for the potato beetle but no other fungicide was used.

Treatment of Soil.

In those cases where the word manure is used in the table it has reference to horse manure used in the hill ; a small amount of dirt was drawn over the seed, then the horse manure, and a final covering of earth.

The lime was used in much the same way, a handful being placed in each hill.

Where the lime and manure were used in combination about one half the quantity of each used in the other cases was put together and used as above described.

The results of this trial do not confirm the idea that manure has a tendency to increase the percentage of scab. It very clearly shows the advantage of the corrosive sublimate treatment where lime is not used, while it appears that the Bordeaux Mixture supplemented by lime is more efficient. With these two fungicides the use of lime appears to have directly opposite results.

Action of Lime on Corrosive Sublimate.

Quick lime is known to chemists by the symbol Ca O. When it is slacked it takes up water, forming a hydroxide. Ca $(O H)_2$ and this acting on bichloroid of mercury forms the oxide of mercury and water, or Ca O + H_2 O = Ca $(O H)_2$.

Ca $(O H)_2$ + $HgCl_2$ = $CaCl_2$ + HgO + H_2 O. *i. e.*, Calcium Hydroxide + Corrosive Sublimate = Calcium Chloride + Mercuric Oxide + Water.

This reaction gives HGO (murcuric oxide) as the hydroxide is not known.

The oxide of mercury is insoluble in water, probably also in the soil. The insoluble product has evidently lost its effectiveness as a fungicide, this being due to the action of the lime.

POTATO SCAB.

No. of row.	Treatment of Soil.	Treatment of Seed.	Length of the row in feet.	Total yield in pounds.	Weight of merchantable.	Weight of unmerchantable.	Weight of scabby in pounds	Percentage of scab.
1	Manured	Untreated	36	37	25	12	2.	5.4
2	Limed	Untreated	36	19	14	5	2.5	12 9
3	Lime and manure	Untreated	36	26	17	9	1.5	5.77
4	Untreated	Untreated	36	15	8	7	4.0	26.6
5	Manured	Corrosive sublimate	36	24	17.5	6.5		
6	Lime	Corrosive sublimate	36	9.5	5.	4.5	2.0	21.0
7	Manure and lime	Corrosive sublimate	36	23	16.5	6.5		
8	Untreated	Corrosive sublimate	36	10	7.5	2.5		
9	Manure	Bordeaux mixture	18	9.5	7.5	2.0	1.0	10.5
10	Lime	Bordeaux mixture	18	5.5	3.0	2.5		
11	Lime and manure	Bordeaux mixture	18	11.5	8.5	3.0	2.0	12.2
12	Untreated	Bordeaux mixture	18	4.0	3.5	0.5	.5	12.5

Co-operative Potato Test.

The tabulated results of the reports of the several persons taking part in the potato test of 1895 clearly and strikingly show the adaptability of the several districts of the State for potato growing.

The comparatively small yield reported in all cases, however, was due to the union of various causes all conspiring to make the past season unfavorable to the growth and development of the potato. The season opened with an untimely warm spell which in-

duced, in many cases, early planting and a rapid development of of the seed. This was followed in May by a series of freezes severe enough to cut to the ground or destroy all tender and succulent foliage. The potatoes of this test shared largely the disaster brought by these adverse conditions; the freeze was followed by a protracted dry period, covering some three weeks of what should have been the best growing season of the year. Taking into account the extreme conditions of the season we may congratulate ourselves that we are able to make so satisfactory a report.

Adverse climatic conditions, however, are not the only causes that worked to reduce the list of reports here presented. Of some 120 samples sent out from this department, reports were received from about 75, many of which were of no value either because of loss of crop by uncongenial conditions or because of incomplete data, however, the results very emphatically show the adaptability by the various sections of the State to potato growing during the season of 1895.

In compiling this data I was forcibly impressed by the large yields reported by those counties lying in the Valley of the Potomac.

This was an unexpected result, as it is generally conceded that the Ohio Valley region is the great potato belt of our State. This idea, however, may have grown out of the fact that a larger acreage of potatoes is grown along the Ohio than in any other portion of the State.

There are two other explanations or theories for these unexpected results, neither of which can, however, be satisfactorily answered without further investigation. The results of the season of 1895 may be due to unequal distribution of frosts and rains, thus giving one locality or section an advantage over another ; and second, the the section in which potatoes have been most extensively grown may be deteriorating so far as the production of that particular crop is concerned. In other words the land may have become "potato sick," and unable to produce as large crops as the section where they have not been so universally grown.

CO-OPERATIVE POTATO TEST.

Variety.	Grower.	Town.	County.	Date of planting.	Date of harvesting.	Quantity of seed planted.		Yield.		Yield per pound of seed planted.
						lbs	oz.	lbs	oz	
American Wonder	D. W. Headley	Cork	Tyler	April 27	Sep. 2	1	0	8	0	8.
	S. S. Jones	Island Branch	Kanawha	April 12	Aug. 27		2	14	2	113.
	J. T. Swisher	Rockford	Harrison	April 28	Oct. 1		4	30	0	120.
	E. M. Sapp	Shinston	Harrison	April 20	Oct. 4	1	4	25	10	20.5
	Jos. Jones	Laurel Point	Monongalia	April 12	Oct. 1	1	0	12	0	12.
	J. B. Haught	Conaway	Tyler	April 19	Sep. 15	1	0	5	0	5.
	Wm. Messenger	Baldwin	Gilmer	April 22	Sep. 1	1		33		33.
	Peter Suyder	Deer Walk	Wood			1		15		15.
	M. M. Dent	Reedy Ripple	Boone	April 12	Aug. 28	1		44		44.
	Wm. Woodall	Beaver Mills	Nicholas	April 26	Aug. 29	1		17	8	17.5
	Lee Starkey	Schilling	Roane	April 1	Aug. 20	11	4	30		2.6
	Dan. Nilson	Blaine	Mineral	May 16	Sep. 15	1		59	8	59.5
	S. H Shaker	Maysville	Grant				10	20	0	32.0
	J. D. Clapp	Brandonville	Preston			1		6		6.0
	B. W. Arnold	Terra Alta	Preston				2	12		96.0
	John McCoy	Franklin	Pendleton			1		7		7.0
Crown Jewell	W. F. Walter	Evansville	Preston	April 1	Sep. 6		10	21	8	34.4
	B. F. Sayer	Evans				1		16		16.
	Thos Mott	Raven Rock	Pleasants	April 10	Sep. 20		8	25		50.
	Jos. Jones	Laurel Point	Monongalia	April 1	Aug. 27	1		16	8	16.5
	E. S. Starkey	Schilling	Roane			1		5		5.
	F. H Proudfoot	Pleasant Creek	Barbour	April 12		1		16	12	16.75
	W. F. Walter	Evansville	Preston	April 1	Sep. 6		10	21	8	34.4
	H. C. Spindle	Cherry Creek	Harrison	May 12	Sep. 29	1		3		3.
	C. N. Austin	Lewisburg	Greenbrier	March 30	Sep. 2	1		24	4	24.25
	John McCoy	Franklin	Pendleton				8	8	11	17.37
Great Divide	B. W. Arnold	Terra Alta	Preston	May 6	Sep. 2		2	6	4	50.0
	E. P. Rhoades	Roney's Pt.	Ohio	April 24		1		20		20.
	D. S. Morton	Newvil'e	Braxton	April 8	Sep. 15	2		29	8	14.8
	S. L. Secrist	Maysville	Grant	April 20		2		30		15.
	F. H. Proudfoot	Pleasant Creek	Barbour	April 12		1		23		23.
	W. T. Walter	Evansville	Preston	April 1	Sep. 6		10	53		84.8
	B. T. Sayer	Evans					1	10		160.
Badger Belle	B. M. Arnold	Terra Alta	Preston	May 6			2	8	4	66.

CO-OPERATIVE POTATO TEST.—*Continued.*

Variety.	Grower.	Town	County.	Date of planting.	Date of harvesting.	Quantity of seed planted.		Yield.		Yield per pound of seed planted.
						lbs.	oz.	lbs.	oz.	
Early Northern	R. W Pickett	Palantine	Marion	April 23	Aug. 26		10	2	2	3.4
	Thos. Mott	Raven's Rock	Pleasants	April 10	Sep. 21	1	6	4	8	3.26
Early Six Weeks	R. W. Pickett	Palantine	Marion	April 23	Aug. 13		7	1	6	3.1
Early Six Weeks	M. V. Snider	Hurst	Lewis			1		7		7.0
Early Everett	C. M. Marquis	Deer Walk					8	6		12.
	S. H. Shaker	Maysville	Grant	April 23	Sep. 3		12	65		86.6
	Dan. Wilson	Blaine	Mineral	May 1	Oct. 5	1		33	8	33 5
	E. G. Manor	Soho	Berkeley	April 22		1	2	14	12	13.1
	S. L. Secrist	Maysville	Grant	April 20		2		44		22.
	Jos. Jones	Laurel Point	Monongalia	April 12	Sep. 1	1		3		3.
	G. W. Grandon	Kauskooth	Marshall	April 24	Aug. 24	1		18	8	18.5
	C. N. Austin	Lewisburg	Greenbrier	March 30	Sep. 2	1		24	4	24.25
Green Mountain	E. S. Starkey	Schilling	Roane	April 1	Sep. 30	1		1		1.
Long Blue	D. S. Morton	Newv lle	Braxton	April 8	Sep. 5	1		16	12	16.75
Montana Wonder	Jos. Jones	Laurel Point	Monongalia	April 20	Sep. 1	2		28		14.
Maggie Murphy	C. M. Marquis	Deer Walk	Wood				8	6		12.
	D. S. Nestor	Anvil	Tucker	April 17	Sep. 10		8	30		96.
	W. B. Baker	Elk City	Barbour	April 11	Sep. 10	1		15		15.
	J. N. Bartlett	Astor	Taylor	April 19	Sep. 22	1	4	20		16.
	S. H. Shaker	Maysville	Grant	April 20	Oct. 4		8	15		30.
	S. L. Secrist	Maysville	Grant	April 18	Oct. 4	2		30		15.
	B. W. Arnold	Terra Alta	Preston	May 6	September		2	11		88.
	S. S. Jones	Island Branch	Kanawha	April 12	Aug. 27		10	14	8	22.4
	Lee Starkey	Schilling	Roane	April 1	Aug. 20	1	4	30		24.
	T. H. Proudfoot	Pleasant Creek	Barbour	April 12		1		25		25.
	John McCoy	Franklin	Pendleton	April 12	Aug. 8		8	11	4	22.5
	G. E. Gaskin	Forksburg	Marion			1	8	74		49.3
Rural New Yorker No. 2	B. W. Arnold	Terra Alta		May 6	September		2	4		32.
	M. M. Dent	Reedy Ripple	Boone	May 20	Sep. 29	1		38		38.
	D. Nestor	Anvil	Tucker	May 17	Sep. 10		5	15		48.
	J. B. Haught	Conaway	Tyler	May 20	Oct. 1	1		16		16.
	Jos. Jones	Laurel Point	Monongalia	May 12	Oct. 20	1		5		5.
	Geo. Park	Ravenswood	Nicholas	May 14	Aug 29	1		8		8.
	J. N. Bartlett	Astor	Taylor	May 19	Aug. 22	1	6	8		5.8

CO OPERATIVE POTATO TEST.—*Concluded.*

Variety.	Grower.	Town.	County.	Date of planting.	Date of harvesting.	Quantity of seed planted		Yield.		Yield per pound of seed planted.
						lb.	oz.	lb.	oz.	
Rural New Yorker No. 2	A. McKawn	Schilling	Roane	April 10	Sept. 5		5	30	00	96.0
	Peter Snyder	Deer Walk	Wood	May 12	Sept. 15	1		12		12.
	W. V. Snyder	Hurst	Lewis		Oct. 15	1		15		15.
	E. P. Rhoades	Rooney's Pt	Ohio	May 23	August 20	1		18	8	18.5
	O. F. Jackson	Morgantown	Monongalia	May 26	Sept. 14	1	4	47		37.5
	E. M. Sapp	Shinston	Harrison	May 18	Oct 4		11	17	2	24 9
	F. M. Walter	Evansville	Preston	May 7	Sept. 6		10	47	8	76.
	H. K. Withrow	Lewisburg	Greenbrier	May 22	Sept. 1	1	4	1	8	1.2
Standard	A. McKowen	Schilling	Roane	May 10	Sept. 6		5	30		96.
	H. C. Spindle	Cherry Camp	Harrison	May 12	Sept. 29	1		6	8	6.5
	Jos. Jones	Laurel Point	Monongalia	April 12	Sept. 1	1		7		7.
Superior	Jos. Jones	Laurel Point	Monongalia	April 12	Sept. 1	1		4		4.
	C. N. Austin	Lewisburg	Greenbrier	March 30	Sept. 3	1		30		30.
Early Rose	W. T. Walter	Evansville	Preston	April 1	Sept. 5		10	32	12	52.4

Temperature of—and Rainfall in—the Several Districts, During the Growing Season of 1895.

A study of the meteorological conditions of the several sections may throw some light upon the subject, and with this in view the following summary of the frosts and rainfall of the various sections is presented. For convenience the State has been divided into five divisions, four of which, because of their position and other natural advantages, have been denominated promising potato districts, because of varying climatic and geological conditions. The fifth division takes in all that portion of the State not embraced in the other four, and while it covers by far the greatest area, it is only taken into consideration in making up the general average for the State.

The four divisions above referred to are entirely arbitrary and based principally on a knowledge of the topography of the country.

Dr. Hopkins, whose travels in the study of the insect life have taken him over nearly every mountain range and valley of the State, kindly suggested the divisions which are as follows:—

First—Ohio Valley—Including the counties of Brooke, Ohio, Marshall, Wetzel (eastern part), Tyler, Pleasants, Wood, Jackson, Mason, and parts of Mason and Putnum—along the Kanawha River.

Second—Potomac Valley—Covering the counties of Jefferson, Berkeley, Morgan, Hampshire, Mineral and Grant.

Third—Third District—Embraces Mercer, Greenbrier, Summers and Monroe counties.

Fourth—Fourth District—Is included within the boundaries of Marion, Harrison, Lewis, Upshur, Taylor and Barbour counties.

By consulting a county map of the State the location of these districts will readily be seen. It suggests first of all that perhaps some of these areas may have been comparatively exempt from the late frost and second that the rainfall of the several districts may have been variable; with a view of clearly bringing out these relations the following table showing the average, maximum and minimum temperature for the several counties of each district together with the corresponding rainfall is here presented.

TEMPERATURE OF AND RAIN FALL IN THE SEVERAL DISTRICTS DURING THE GROWING SEASON OF 1895.

Districts.	Temperature and Rain Fall.	March.	April.	May.	June.	July.	August.	Total Rain Fall for District.	Variety giving largest yield in the district.
1st District.	Maximum Temp.	74.3	84.3	71.0	87.5	84.3	87.6		
	Minimum Temp.	11.3	28.5	50.2	61.5	60.0	62.7		Crown
	Rain Fall	2.72	2.19	2.12	2.42	3.21	2.35	15.00	Jewell.
2nd. District.	Maximum Temp.	76.6	85.3	71.0	82.0	78.0	82.0		
	Minimum Temp.	13.3	25.0	46.0	54.0	53.0	56.0		American
	Rain Fall	2.75	2.55	2.03	2.21	2.45	2.24	14.23	Wonder.
3rd. District.	Maximum Temp.	78.0	85.5	75.0	84.0	83.5	85.5		
	Minimum Temp.	17.5	28.0	52.0	57.7	61.5	62.5		
	Rain Fall	2.88	3.32	1.67	2.81	3.16	3.11	16.85	Superior.
4th. District	Maximum Temp.	76.0	82.0	77.0	85.0	80.0	84.0		
	Minimum Temp.	10.0	27.0	51.0	58.0	56.5	57.5		American
	Rain Fall	4.15	4.35	1.65	3.43	3.42	2.72	19.72	Wonder

It will be observed that during March and April the fourth district received much more rain than either of the other districts; 8.5 in. while in neither of the others more than 6.2 inches fell. The minimum temperature was, however, somewhat lower in the Fourth District, but in all, freezing weather occurred during the same months.

Comparison of Varieties.

The results obtained from the co-operative potato tests of the season of 1895, while far from being as satisfactory as might be desired, yet furnish valuable data for comparing the productiveness of the several varieties in the various sections of the State, as well as, noting the varieties doing best over the State in general. With a view of determining the value of any one variety for a given section its yield in each section is compared with the average yield of that variety for the whole State.

To reduce all the varied results to a common basis the average yield of one pound of seed in each district is taken as the basis of comparison.

The following table presents in a most striking manner the behavior of the several varieties in the various sections of the State. The numbers underscored represent the largest yields for the district; the variety for which it is the record may then be considered as well suited for the soil and climate of that particular district.

RATE OF YIELD PER POUND OF SEED PLANTED FOR DISTRICTS AND FOR THE STATE.

Variety.	First District, Ohio Valley.	Second District, Potomac.	Third District.	Fourth District.	State in General.
American Wonder	10.0	40.3		31.1	15
Crown Jewel	50 0		24.5	22.0	19.8
Great Divide	20 0			25.0	23.5
Early Northern	3.3				3.3
Early Six Weeks					3.1
Early Everette	18.5	39.0	24.5		26 6
Early Everette, No. 1					21.37
Green Mountain					1.0
Maggie Murphy	16 75			16.0	24.6
Rural New Yorker	15.0		15.0		15.1
Rural New Yorker, No. 2	15.0		15.0	12.5	15.6
Standard					6.7
Superior			30.5		17.2

Cultural Suggestions.

The culture a crop receives after it has been properly planted often determines upon which side of the ledger the balance occurs at the close of the year. In general good culture means a crop while poor culture or neglect returns a corresponding harvest.

Some have conceived the idea that the sole object of cultivation is to prevent the growth of weeds. This is a function of all true cultivation but should not be made the only reason for culture.

The intelligent cultivator has three objects in view when he cultivates any crop:

1. To supply the growing crop with food.
2. To conserve for the use of that crop as much moisture as is practicable.
3. The destruction of weeds.

Within certain limits the finer a soil is the more available becomes the plant food it contains.

In clay soils this state of division can be carried too far, for if the soil becomes as fine as dust when it gets wet it becomes adhesive and upon drying loses its consistency and is thereby injured. But with sandy, gravely and loamy soils there is little danger from this cause. The more thoroughly, then, cultivation is done the more food will be ready for use by the plant.

Deep plowing followed by a thorough harrowing to form a suitable seed bed are among the primary requirements for success.

A prevailing custom not many years ago was to "hill up" corn and potatoes, some times making mounds or ridges from 8 to 12

inches in height. What argument can be brought to substantiate such a practice or what lead to it is hard to say; but there are many legitimate reasons for discouraging the method:—

1. It exposes an excessive surface of soil to the action of wind and sun.

2. It lowers the level to which capillary water is naturally raised thus making the supply more difficult for plants to obtain.

3. It breaks off and exposes roots that should be a help to the plant.

Level culture or as near an approach to it as is possible is the ideal, but with *level* culture go *shallow* culture. Surface cultivation kills the weeds, breaks the crust of the soil, keeps it loose and pliable and through this layer of loose soil which acts like a mulch over the surface, moisture is conserved.

To make this natural soil mulch most efficient care is needed, and cultivation merely for the purpose of keeping down weeds will not suffice. After each shower, as soon as the ground will permit, cultivate the soil, otherwise the efficiency of the loose layer of soil will be lost and evaporation will go on as rapidly as ever.

During the dry time frequent cultivation by keeping this soil mulch in active operation prevents evaporation and keeps at the disposal of the growing crop an amount of moisture that could not otherwise be maintained without irrigation.